

REMARKS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-5, 9-11, and 13-23 are presently active in this case, Claim 11 having been amended and Claim 23 having been added by way of the present Amendment.

Claims 1-5, 9, and 10 were indicated as being allowable.

The Applicants wish to thank Examiner Davis Hwu for the courtesies extended to the Applicants' representative, Christopher Ward, during the personal interview conducted on October 16, 2002.

In the outstanding Official Action, Claim 11 was rejected under 35 U.S.C. 102(b) as being anticipated by Crowe (U.S. Patent No. 2,398,884). Claims 13-16 and 18-22 were rejected under 35 U.S.C. 102(b) as being anticipated by Singh (U.S. Patent No. 5,174,744). Claim 17 was rejected under 35 U.S.C. 103(a) as being unpatentable over Singh. For the reasons discussed below, the Applicant respectfully requests the withdrawal of the art rejections.

Claim 11 recites a nozzle for a burner having a first tube extending through the body, and a second tube extending through the body. The first tube has a first outlet on a second end of the body, and the second tube has a second outlet on the second end of the body. At least one of the first outlet and the second outlet has an angle of dispersion in a range from about 7 degrees to about 15 degrees. The Applicant submits that the Crowe reference does not disclose or suggest all of the limitations recited in Claim 11.

Claim 11 has been amended as suggested by the Examiner during the personal interview. The Applicants submit that amended Claim 11 is allowable, since the references

of record do not disclose or suggest the express limitations recited in Claim 11. Therefore, the Applicant requests the withdrawal of the anticipation rejection of Claim 11.

Claim 13 of the present application recites a nozzle for a burner including a body having a first end adapted to attach to the burner and a second end. The first end has a plurality of inlet holes and the second end has a plurality of outlet holes. Each inlet hole is connected to a single outlet hole by a separate tube, and all of the separate tubes in the body extend along a common plane. Claim 19 of the present application recites a nozzle for a burner including a body having a first end adapted to attach to the burner and a second end. The body has a plurality of separate tubes extending therethrough. The plurality of separate tubes each have an inlet hole on the first end and an outlet hole on the second end, and all of the plurality of separate tubes in the body extend along a common plane.

*not relied* The Applicant submits that the Singh reference does not disclose a nozzle for a burner including a body having separate tubes where all of the separate tubes in the body extend along a common plane, as recited in Claims 13 and 19 of the present application.

Accordingly, the Applicant submits that the Singh reference does not anticipate Claims 13 and 19 of the present application. The use of separate tubes is advantageous in that it provides a structure that reduces the likelihood of cracking discussed with regard to the burner nozzle depicted in Figure 4 of the present application.

The Singh reference describes an industrial burner with low NO<sub>x</sub> and CO emissions. The burner includes a box-like housing (11) with an elongated cast iron burner nozzle (13) disposed within the housing (11). Natural gas or other fuel under pressure is supplied under pressure through the line (14) to a fuel chamber (17) in the nozzle (13). Fuel from the chamber (17) is discharged to the forward face of the nozzle by means of upper and lower rows of laterally spaced fuel passages (18, 19). Combustion air from the blower (15) is

directed through upper and lower rows of laterally spaced main combustion air passages (20 and 21).

As can clearly be seen in Figure 1, the various passages (20, 21) do not extend along a common plane, but rather the passages (20, 21) are distributed in various rows across the nozzle (13). To the contrary, Claims 13 and 19 of the present invention expressly recite that all of the separate tubes that extend through the body of the nozzle must extend along a common plane. The Singh reference does not disclose or suggest such a configuration, and therefore does not anticipate Claims 13 and 19. The Singh reference clearly depicts a nozzle (13) that includes numerous passages (20, 21) that are arranged in an array. Due to the arrangement of the passages (20, 21) in an array of stacked rows, it is not possible for all of the passages that extend through the nozzle body (namely, passages 20, 21) to extend along a common plane. In other words, it is impossible to find a common plane along which all of the passages (20, 21) extend. Accordingly, the Singh reference does not disclose a nozzle for a burner including a body having separate tubes where all of the separate tubes in the body extend along a common plane, as recited in Claims 13 and 19 of the present application. The Applicant respectfully submits that all of the limitations recited in the claims must be given weight when considering the patentability of the claims.

Claims 14-18, 20, and 22 are considered allowable for the reasons advanced for Claims 13 and 19 from which they depend. These claims are further considered allowable as they recite other features of the invention that are neither disclosed, taught, nor suggested by the applied references when those features are considered within the context of Claims 13 and 19.

Claim 21 of the present application recites a nozzle for a burner that includes a body having a first end adapted to attach to the burner and a second end. The first end has a

plurality of inlet holes and the second end has a plurality of outlet holes, where each inlet hole is connected to a single outlet hole by a separate tube. At least one of the separate tubes includes a first linear section connected to one of the inlet holes and a second linear section connected to one of the outlet holes, where the second linear section is provided at a predetermined angle in relation to the first linear section.

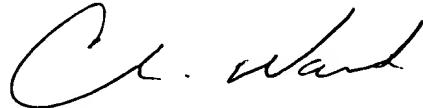
The Applicant submits that the Singh reference does not disclose a nozzle for a burner where each inlet hole is connected to a single outlet hole by a separate tube. The Singh reference depicts a nozzle (3) having an inlet for passage (20) that is connected to two outlet holes, namely the outlet hole for passage (20) and the outlet hole for air stabilizing passage (22) that branches off of passage (20). Similarly, the Singh reference depicts a nozzle (3) having an inlet for passage (21) that is connected to two outlet holes, namely the outlet hole for passage (21) and the outlet hole for air stabilizing passage (23) that branches off of passage (21). Furthermore, the Singh reference depicts a nozzle (3) having a chamber (17) that is connected to two outlet holes, namely passages (18, 19). Accordingly, the Applicant submits that the Singh reference does not anticipate Claim 21 of the present application, since the Singh reference includes an inlet hole (e.g., the inlet for passage 20, the inlet for passage 21, or the inlet for chamber 17) that is connected to two outlet holes (e.g., outlet holes for passage 20 and passage 22, the outlet holes for passage 21 and passage 23, and the outlet holes for passage 18 and passage 19, respectively). Therefore, it cannot be said that each inlet hole is connected to a single outlet hole by a separate tube, as is expressly recited in Claim 21 of the present application.

Accordingly, the Applicant respectfully requests the withdrawal of the art rejections.

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Respectfully submitted,

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**IN THE CLAIMS**

11. (Twice Amended) A nozzle for a burner, said nozzle comprising:
- a body having a first end adapted to attach to the burner and a second end;
- a first tube extending through said body, said first tube having a first inlet on said first end of said body and a first outlet on said second end of said body; and
- a second tube extending through said body, said second tube having a second inlet on said first end of said body and a second outlet on said second end of said body,
- wherein said first tube and said second tube are separate along a substantial length of said body,
- wherein said first tube includes a first linear section connected to said first inlet and a second linear section connected to said first outlet, said second linear section being provided at a predetermined angle in relation to said first linear section, [and]
- wherein said first tube maintains a constant cross-sectional area over a substantial length thereof, and wherein said second tube maintains a constant cross-sectional area over a substantial length thereof, and
- wherein at least one of said first outlet and said second outlet has an angle of dispersion in a range from about 7 degrees to about 15 degrees.

23. (New)